

**Sent:** 5/8/2017 8:18:53 PM  
**To:** Flippin, Jennifer [Jennifer.Flippin@tetrattech.com]; Stacey, Paul [Paul.Stacey@wildlife.nh.gov]; 'Logan, John (FWE)' [John.Logan@MassMail.State.MA.US]; 'Debbie Rutecki' [drutecki@normandeau.com]; Jane Sawyers [Jane.Sawyers@DEM.RI.GOV]; Benjamin Jessup [benjamin.jessup@tetrattech.com]; todd.callaghan@state.ma.us; coviatt@uri.edu; stoffelh@hotmail.com; ptango@chesapeakebay.net; Thursby, Glen [Thursby.Glen@epa.gov]; Voorhees, Jeanne [voorhees.jeanne@epa.gov]; heidi.travers@dem.ri.gov; Dave Secor [secor@cbl.umces.edu]  
**CC:** Rebecca.Weidman@state.ma.us; Carey, Richard (DEP) [richard.carey@state.ma.us]; Groff, Kimberly (DEP) [kimberly.groff@state.ma.us]; Murphy, Bob [Bob.Murphy@tetrattech.com]; Harry Stewart [hstewart@normandeau.com]; Meehan, Clair [Clair.Meehan@tetrattech.com]; DHenry@donahue.umassp.edu  
**Subject:** RE: TAC meeting 2 Action Items

Hi Everyone,

After consideration of the discussions that we've had and looking at various documents, EPA R1 has concerns with some aspects of the approach that this project is taking, especially relative to waterbody classification, antidegradation, and MA DEP's CALM document.

### **Waterbody Classification:**

It is not appropriate to apply the approach being taken to revise the MA coastal DO criteria for Class SB waters and apply it to Class SA waters as discussed in our last meeting.

First, the designated uses specified for Class SA and SB as defined in 314 CMR 4.05 and 314 CMR 4.06 and are distinctly different. Each of the classes is identified by the "most sensitive use, and therefore governing, water uses to be achieved and protected" (314 CMR 4.05(1). Class SA waters are designated as "excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, sea grass." In many instances Massachusetts DEP has also designated Class SA waters as Outstanding Resource Waters where, "The quality of the waters shall be protected and maintained (314 CMR 4.04(3)).

The process to date is not designed for SA waters, especially with respect to identifying DO conditions "necessary for excellent habitat", nor does it assess existing DO conditions in those SA waters which are ORWs and whose "water quality shall be protected and maintained."

~~CLASS SA - These waters are designated as an excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. In certain waters, excellent habitat for fish, other aquatic life and wildlife may include, but is not limited to, sea grass. Where designated in the tables to 314 CMR 4.00 for shellfishing, these waters shall be suitable for shellfish harvesting without depuration (Approved and Conditionally Approved Shellfish Areas). These waters shall have excellent aesthetic value.~~ I don't think we need the definition since we provide the citation, but I'm not opposed to leaving it either.

### **Antidegradation:**

The state needs to consider that revisions to SA waters would be inconsistent with DEP's Antidegradation policy, especially if DO criteria were to be lowered. The policy specifically provides protection to "existing beneficial uses and to minimize degradation of the state's water quality."

#### **Antidegradation Policy**

The third component of the SWQS is the antidegradation rule that contains provisions designed to preserve and protect the existing beneficial uses and to minimize degradation of the state's water quality. These provisions restrict or prohibit the authorization of wastewater discharges to critical resource waters. Most notable is the Outstanding Resource Water (ORW) designation that applies to all Class A waters and certain Class B, Class SA and Class SB waters. These waters exhibit exceptional socio-economic, recreational,

ecological and/or aesthetic qualities. ORWs include, but are not limited to, Class A public water supplies and their bordering vegetated wetlands and vernal pools certified as such by the Massachusetts Division of Fish and Game. Other waters designated as ORWs may include those protected by special legislation, as well as selected waters found in National Parks, State Forests and Parks, or Areas of Critical Environmental Concern (ACECs).

#### MA DEP CALM Document

Finally, using the Virginian Province approach is inconsistent with MA DEP's CALM. In particular, ~~In looking at DEP's CALM document~~, the Virginian Province approach is not consistent with how DEP's CALM document is used to evaluate impairments of the Aquatic Life Designated Use for fish communities with regard to loss of population:

**Fish community data (lakes, estuaries)** – Not currently utilized to make *Aquatic Life Use* support determination for either lentic or estuarine waters. However, impact evaluations based on studies of site-specific fish community data (e.g., those associated with large power plant type operations relating to impingement and entrainment) and/or the presence of DELTS with abnormal fish histology have been used to determine that the *Aquatic Life Use* is impaired.

Use is Supported	Use is Impaired
None made	> 5% population losses estimated , DELTS with abnormal fish histology

I'm not making the connection here for the fish community data ☹  
the

**DEP CALM Guidance for Warm Water DO Criteria:** DEP selected DO targets that are greater than the EPA 1986 Guidance for some categories of criteria. What is the reasoning for adopting an approach for setting marine DO criteria that does not reflect DEP's approach in setting protective DO criteria for warmwater fish in freshwater? For example,

- **The 7-day mean for early life stages of warmwater fish** chosen for a criterion is **6.5 mg/l**. This is slightly higher than the criterion (6.0 mg/l) recommended by EPA (Table 1; EPA, 1986). EPA's Table 2 lists "no production impairment" at DO near 6.5 mg/l. EPA did not have a recommendation for the 30-day mean category for early life stage warmwater fish, and the CALM committee felt that, absent any 30-day average recommendation from that agency, at least one of the criteria categories should reflect a "no impairment" status.
- **A 7-day mean minimum criterion for "other life stages" of warmwater fish of 5.0 mg/l** is 1.0 mg/l higher than EPA's recommendation. EPA's Table 2 (EPA, 1986) shows "slight" production impairment to "other life stages" of warmwater fish at DO values near 5.0 mg/l and "some" production impairment to invertebrates at DO values near 5.0 mg/l. EPA's recommendation of 4.0 mg/l for this category appeared to be much too low to the CALM Committee as it was listed as the "Acute Mortality Limit" for invertebrates in EPA's Table 2.
- **A 30-day mean criterion for "other" life stages of warmwater fish of 6.0 mg/l** is 0.5 mg/l higher than that in EPA's Table 1 (EPA, 1986) for this category. We chose this value to correspond to a "no production impairment" value (as we had for the cold water 30-day mean criterion) which is supported by EPA's Table 2 (EPA, 1986) recommendation for this category.
- **A 1-day minimum for early, warmwater life stages of 5 mg/l** is the same as that in EPA's Table 1 (EPA, 1986) for this category. Moderate production was found at DO levels around 5 mg/l and below and slight production impairment was found at DO values around 5.5 mg/l. "Some" production impairment to invertebrates was found at DO values near 5 mg/l.
- **The 1-day minimum value for warmwater fish of "other life stages" is 4.0 mg/l.** EPA (Table 2, EPA 1986) found "moderate production impairment" to warmwater fish of "other life stages" at this DO concentration and, as mentioned above, this is the Acute Mortality Limit (EPA, 1986, Table 2) for invertebrates.
- Early life stages of certain warm water fish are found during the June 1-Sept. 15 period prompting the need to develop DO assessment criteria for both "early" and "other" life stages. ~~DO WE NEED THESE 4 Bullets?~~ If so, I don't really understand their implications, but maybe I'm missing something and not making the connection☹

Finally, were Salter Brook Trout in the calculations for the DO targets? ~~I see from~~ Based on the species list, it appears that they were not part of the Virginian Province approach. Is this because ~~which I'm assuming means that~~ there aren't any lab toxicity testing data to use for the calculation. Please clarify why Salter Brook Trout are not being considered.

### Warm Water Criteria

Early life stages of certain warm water fish are found during the June 1-Sept. 15 period prompting the need to develop DO assessment criteria for both "early" and "other" life stages.

**The 7-day mean for early life stages of warmwater fish** chosen for a criterion is **6.5 mg/l**. This is slightly higher than the criterion (6.0 mg/l) recommended by EPA (Table 1; EPA, 1986). EPA's Table 2 lists "no production impairment" at DO near 6.5 mg/l. EPA did not have a recommendation for the 30-day mean category for early life stage warmwater fish, and the CALM committee felt that, absent any 30-day average recommendation from that agency, at least one of the criteria categories should reflect a "no impairment" status.

**A 1-day minimum for early, warmwater life stages of 5 mg/l** is the same as that in EPA's Table 1 (EPA, 1986) for this category. Moderate production was found at DO levels around 5 mg/l and below and slight production impairment was found at DO values around 5.5 mg/l. "Some" production impairment to invertebrates was found at DO values near 5 mg/l.

**A 30-day mean criterion for "other" life stages of warmwater fish of 6.0 mg/l** is 0.5 mg/l higher than that in EPA's Table 1 (EPA, 1986) for this category. We chose this value to correspond to a "no production impairment" value (as we had for the cold water 30-day mean criterion) which is supported by EPA's Table 2 (EPA, 1986) recommendation for this category.

**A 7-day mean minimum criterion for "other life stages" of warmwater fish of 5.0 mg/l** is 1.0 mg/l higher than EPA's recommendation. EPA's Table 2 (EPA, 1986) shows "slight" production impairment to "other life stages" of warmwater fish at DO values near 5.0 mg/l and "some" production impairment to invertebrates at DO values near 5.0 mg/l. EPA's recommendation of 4.0 mg/l for this category appeared to be much too low to the CALM Committee as it was listed as the "Acute Mortality Limit" for invertebrates in EPA's Table 2.

**The 1-day minimum value for warmwater fish of "other life stages" is 4.0 mg/l.** EPA (Table 2, EPA 1986) found "moderate production impairment" to warmwater fish of "other life stages" at this DO concentration and, as mentioned above, this is the Acute Mortality Limit (EPA, 1986, Table 2) for invertebrates.

Toby Stover  
US EPA-Region 1  
Water Quality Quality Branch  
[Stover.toby@epa.gov](mailto:Stover.toby@epa.gov)  
617-918-1604  
5 Post Office Square  
Boston, MA 02109

---

**From:** Flippin, Jennifer [mailto:Jennifer.Flippin@tetrattech.com]

**Sent:** Wednesday, May 03, 2017 7:19 AM

**To:** Stacey, Paul <Paul.Stacey@wildlife.nh.gov>; 'Logan, John (FWE)' <John.Logan@MassMail.State.MA.US>; 'Debbie Rutecki' <drutecki@normandeanu.com>; Jane Sawyers <Jane.Sawyers@DEM.RI.GOV>; Benjamin Jessup <benjamin.jessup@tetrattech.com>; todd.callaghan@state.ma.us; coviatt@uri.edu; stoffelh@hotmail.com; Stover, Toby <Stover.Toby@epa.gov>; ptango@chesapeakebay.net; Thursby, Glen <Thursby.Glen@epa.gov>; Voorhees, Jeanne

<voorhees.jeanne@epa.gov>; heidi.travers@dem.ri.gov; Dave Secor <secor@cbl.umces.edu>  
**Cc:** Rebecca.Weidman@state.ma.us; Carey, Richard (DEP) <richard.carey@state.ma.us>; Groff, Kimberly (DEP) <kimberly.groff@state.ma.us>; Murphy, Bob <Bob.Murphy@tetrattech.com>; Harry Stewart <hstewart@normandeau.com>; Meehan, Clair <Clair.Meehan@tetrattech.com>; DHenry@donahue.umassp.edu  
**Subject:** RE: TAC meeting 2 Action Items

Hi Everyone,

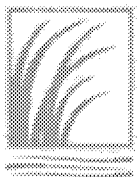
Just a reminder—if you have any additional comments on the species list or study area document from the last meeting, please try to get those to us by the end of today.

Thanks,  
Jennifer

---

**From:** Stacey, Paul [<mailto:Paul.Stacey@wildlife.nh.gov>]  
**Sent:** Tuesday, May 02, 2017 9:38 AM  
**To:** 'Logan, John (FWE)' <[John.Logan@MassMail.State.MA.US](mailto:John.Logan@MassMail.State.MA.US)>; 'Debbie Rutecki' <[drutecki@normandeau.com](mailto:drutecki@normandeau.com)>; Flippin, Jennifer <[Jennifer.Flippin@tetrattech.com](mailto:Jennifer.Flippin@tetrattech.com)>; 'Sawyers, Jane (DEM)' <[jane.sawyers@dem.ri.gov](mailto:jane.sawyers@dem.ri.gov)>; Jessup, Benjamin <[benjamin.jessup@tetrattech.com](mailto:benjamin.jessup@tetrattech.com)>; Callaghan, Todd (EEA) <[todd.callaghan@state.ma.us](mailto:todd.callaghan@state.ma.us)>; [coviatt@uri.edu](mailto:coviatt@uri.edu); [stoffelh@hotmail.com](mailto:stoffelh@hotmail.com); [Stover.Toby@epa.gov](mailto:Stover.Toby@epa.gov); [ptango@chesapeakebay.net](mailto:ptango@chesapeakebay.net); [Thursby.glen@Epa.gov](mailto:Thursby.glen@Epa.gov); [voorhees.jeanne@epa.gov](mailto:voorhees.jeanne@epa.gov); [heidi.travers@dem.ri.gov](mailto:heidi.travers@dem.ri.gov); Dave Secor <[secor@cbl.umces.edu](mailto:secor@cbl.umces.edu)>  
**Cc:** Weidman, Rebecca (DEP) <[rebecca.weidman@state.ma.us](mailto:rebecca.weidman@state.ma.us)>; Carey, Richard (DEP) <[richard.carey@state.ma.us](mailto:richard.carey@state.ma.us)>; Groff, Kimberly (DEP) <[kimberly.groff@state.ma.us](mailto:kimberly.groff@state.ma.us)>; Murphy, Bob <[Bob.Murphy@tetrattech.com](mailto:Bob.Murphy@tetrattech.com)>; Harry Stewart <[hstewart@normandeau.com](mailto:hstewart@normandeau.com)>; Meehan, Clair <[Clair.Meehan@tetrattech.com](mailto:Clair.Meehan@tetrattech.com)>; [DHenry@donahue.umassp.edu](mailto:DHenry@donahue.umassp.edu)  
**Subject:** RE: TAC meeting 2 Action Items

There's a growing number of versions of this list being circulated – can they be tagged with a date as they're revised as I did with the one John just sent around? And a "DRAFT DD Month YYYY" somewhere in the document? Example attached – No, it's not another version!! ☺



GREAT BAY  
NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE

Paul E. Stacey  
Research Coordinator  
Great Bay National Estuarine Research  
New Hampshire Fish & Game Department  
69 Depot Road, Greenland, NH 03840  
Phone (603) 294-0146



Reserve

See us on FACEBOOK: [Great Bay Discovery Center](#)

---

**From:** Logan, John (FWE) [<mailto:John.Logan@MassMail.State.MA.US>]  
**Sent:** Tuesday, May 02, 2017 9:27 AM  
**To:** 'Debbie Rutecki'; 'Flippin, Jennifer'; 'Sawyers, Jane (DEM)'; Jessup, Benjamin; Callaghan, Todd (EEA); [coviatt@uri.edu](mailto:coviatt@uri.edu); [stoffelh@hotmail.com](mailto:stoffelh@hotmail.com); Stacey, Paul; [Stover.Toby@epa.gov](mailto:Stover.Toby@epa.gov); [ptango@chesapeakebay.net](mailto:ptango@chesapeakebay.net); [Thursby.glen@Epa.gov](mailto:Thursby.glen@Epa.gov); [voorhees.jeanne@epa.gov](mailto:voorhees.jeanne@epa.gov); [heidi.travers@dem.ri.gov](mailto:heidi.travers@dem.ri.gov); Dave Secor  
**Cc:** Weidman, Rebecca (DEP); Carey, Richard (DEP); Groff, Kimberly (DEP); Murphy, Bob; Harry Stewart; Meehan, Clair; [DHenry@donahue.umassp.edu](mailto:DHenry@donahue.umassp.edu)  
**Subject:** RE: TAC meeting 2 Action Items

Hi everyone,

I've attached a copy of the species table w/species of particular ecological/economic importance identified.

John

---

**From:** Debbie Rutecki [<mailto:drutecki@normandeau.com>]

**Sent:** Thursday, April 27, 2017 9:29 AM

**To:** Logan, John (FWE); 'Flippin, Jennifer'; 'Sawyers, Jane (DEM)'; Jessup, Benjamin; Callaghan, Todd (EEA); [coviatt@uri.edu](mailto:coviatt@uri.edu); [stoffelh@hotmail.com](mailto:stoffelh@hotmail.com); [Paul.Stacey@wildlife.nh.gov](mailto:Paul.Stacey@wildlife.nh.gov); [Stover.Toby@epa.gov](mailto:Stover.Toby@epa.gov); [ptango@chesapeakebay.net](mailto:ptango@chesapeakebay.net); [Thursby.glen@Epa.gov](mailto:Thursby.glen@Epa.gov); [voorhees.jeanne@epa.gov](mailto:voorhees.jeanne@epa.gov); [heidi.travers@dem.ri.gov](mailto:heidi.travers@dem.ri.gov); Dave Secor

**Cc:** Weidman, Rebecca (DEP); Carey, Richard (DEP); Groff, Kimberly (DEP); Murphy, Bob; Harry Stewart; Meehan, Clair; [DHenry@donahue.umassp.edu](mailto:DHenry@donahue.umassp.edu)

**Subject:** RE: TAC meeting 2 Action Items

Hi John,

Attached is the recommended species table as text in a word document. This is the same table as presented at the April 19, 2017 TAC meeting. The remaining species recommended by RIDEM including ribbed mussel have not yet been added to the table as was discussed at the meeting.

Debbie

DEBORAH RUTECKI  
NORMANDEAU ASSOCIATES, INC.  
508-548-0700 (phone) 508-548-0702 (fax)

---

**From:** Logan, John (FWE) [<mailto:John.Logan@MassMail.State.MA.US>]

**Sent:** Thursday, April 27, 2017 8:44 AM

**To:** 'Flippin, Jennifer'; 'Sawyers, Jane (DEM)'; Jessup, Benjamin; Callaghan, Todd (EEA); [coviatt@uri.edu](mailto:coviatt@uri.edu); [stoffelh@hotmail.com](mailto:stoffelh@hotmail.com); [Paul.Stacey@wildlife.nh.gov](mailto:Paul.Stacey@wildlife.nh.gov); [Stover.Toby@epa.gov](mailto:Stover.Toby@epa.gov); [ptango@chesapeakebay.net](mailto:ptango@chesapeakebay.net); [Thursby.glen@Epa.gov](mailto:Thursby.glen@Epa.gov); [voorhees.jeanne@epa.gov](mailto:voorhees.jeanne@epa.gov); [heidi.travers@dem.ri.gov](mailto:heidi.travers@dem.ri.gov); Dave Secor

**Cc:** Weidman, Rebecca (DEP); Carey, Richard (DEP); Groff, Kimberly (DEP); Murphy, Bob; Harry Stewart; Meehan, Clair; Debbie Rutecki; [DHenry@donahue.umassp.edu](mailto:DHenry@donahue.umassp.edu)

**Subject:** RE: TAC meeting 2 Action Items

Thanks for the updates. Could you send me a copy of the species table as text so I can add in comments on econ/ecol importance? The tables in the previous draft are all inserted as pictures, so they aren't in a good format for adding track changes.

Thanks,

John

---

**From:** Flippin, Jennifer [<mailto:Jennifer.Flippin@tetrattech.com>]

**Sent:** Wednesday, April 26, 2017 3:43 PM

**To:** Logan, John (FWE); 'Sawyers, Jane (DEM)'; Jessup, Benjamin; Callaghan, Todd (EEA); [coviatt@uri.edu](mailto:coviatt@uri.edu); [stoffelh@hotmail.com](mailto:stoffelh@hotmail.com); [Paul.Stacey@wildlife.nh.gov](mailto:Paul.Stacey@wildlife.nh.gov); [Stover.Toby@epa.gov](mailto:Stover.Toby@epa.gov); [ptango@chesapeakebay.net](mailto:ptango@chesapeakebay.net); [Thursby.glen@Epa.gov](mailto:Thursby.glen@Epa.gov); [voorhees.jeanne@epa.gov](mailto:voorhees.jeanne@epa.gov); [heidi.travers@dem.ri.gov](mailto:heidi.travers@dem.ri.gov); Dave Secor

**Cc:** Weidman, Rebecca (DEP); Carey, Richard (DEP); Groff, Kimberly (DEP); Murphy, Bob; [hstewart@normandeau.com](mailto:hstewart@normandeau.com); Meehan, Clair; [drutecki@normandeau.com](mailto:drutecki@normandeau.com); [DHenry@donahue.umassp.edu](mailto:DHenry@donahue.umassp.edu)

**Subject:** TAC meeting 2 Action Items

Hi Everyone,

The action items from last week's meeting are attached. Let me know if we've missed anything.

We'll post all of the presentations and meeting materials on the sharepoint site

<https://sites.tetratech.com/projects/100-ESD-36809>

Thanks,  
Jennifer

---

Please consider the environment before printing this e-mail.